REMARKS

Claims 46-64 are active in the present application. Support for Claims 46-64 is found in Claims 1-45 of the specification as originally filed and are drawn to the elected subject matter. Claims 1-24 and 40-45 have been canceled to comply with the Examiner's final Restriction Requirement. Applicants reserve the right to pursue these claims in a Divisional application.

Applicants have now submitted a substitute Sequence Listing and a corresponding computer-readable Sequence Listing. Sequence Identifiers (SEQ ID NO:) have been added to the specification. The sequence information recorded in the corresponding computer-readable Sequence Listing is identical to the paper copy of the substitute Sequence Listing. Support for all of the sequences listed in the substitute Sequence Listing is found in the present application as originally filed. No new matter is believed to have been introduced by the submission of the substitute Sequence Listing and the corresponding computer-readable Sequence Listing.

The specification and claims are amended for clarity. No new matter has been added. Favorable reconsideration is respectfully requested.

Applicants wish to thank Examiner Grun for the courteous discussion held with undersigned Applicants' representative on March 28, 2000. The substance of this discussion is expanded upon in the remarks made below.

The rejection of Claims 25-39 under 35 U.S.C. §102(b) over Longacre et al is respectfully traversed.

Claims 25-39 have been cancelled. Claims 46-64 are not anticipated by Longacre et al because Longacre et al merely disclose a recombinant baculovirus containing a DNA fragment of *Plasmodium vivax* MSP1 which includes the sequence found in GenBank under

the accession number that M60807 (see page 192, column 2, paragraph 2 - page 193, column 1, paragraph 3). A copy of this GenBank sequence is attached for the Examiner's reference. However, Longacre et al do not disclose a synthetic nucleotide polynucleotide encoding the 19kD C-terminal fragment of MSP-1 having a total GC content of 40-60% as presently claimed. As evidenced in the attached Declaration under 37 C.F.R. §1.132 executed by Dr. Longacre-Andre, the sequence of the native p19 MSP1 gene (corresponding to the GenBank sequence used in the reference) has a GC content of 33% whereas the synthetic polynucleotide according to the present invention has a GC content of 54% (see page 2 of the attached Declaration). Accordingly, the instant claims are not anticipated by the reference and withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 25-39 under 35 U.S.C. §103(a) over Chappel et al, Miller et al and Longacre et al is respectfully traversed.

Claims 25-39 have been canceled. Claims 49-64 are not obvious in view of these references because the combined references do not suggest the baculovirus containing the synthetic polynucleotide as claimed. In particular, Chappel et al teach only a recombinant baculovirus containing the amino terminal 34 amino acids of the *P. falciparum* MSP1 protein fused to 271 amino acids of the P42 fragment of the native protein of *P. falciparum* ending at residue 1723 of the sequences disclosed and numbered in Miller et al. Miller et al simply disclose an analysis of sequence diversity in the *P. falciparum* MSP1 protein whereas Longacre et al disclose a native gene of *P. vivax* as discussed above. Therefore, the cited references do not suggest the present synthetic nucleotide polynucleotide encoding the 19kD C-terminal fragment of MSP1 having a total GC content between 40 and 60%. Furthermore, the cited references could not have predicted the significant advantages of the synthetic polynucleotide as is shown in the attached Declaration executed by Dr. Longacre-Andre. In

these experiments, recombinant baculoviruses containing either a native polynucleotide or the synthetic polynucleotide of the C-terminal region of MSP1 were used to infect SF9 cells in culture. The data in the Declaration demonstrate that the protein encoded by the synthetic gene exhibited significantly more reactivity with hyperimmune antiserum than the native gene (see paragraph 9 and Figure 2 of the attached Rule 132 Declaration).

Since none of the cited references teach the present synthetic polynucleotide nor could have predicted the increased reactivity with the hyperimmune serum, the instant claims are not obvious in view of the combination of the cited references. Accordingly, withdrawal of this ground of rejection is respectfully requested.

Claims 25-39 have been provisionally rejected under the doctrine of obviousness-type double patenting over Claims 53-63 of copending Application Serial No. 09/134,333. Applicants respectfully request that this provisional rejection be held in abeyance until such time that the claims in the present application have been found to be allowable.

Claims 25-39 have been provisionally rejected under the doctrine of obviousness-type double patenting over Claims 20-33 of copending Application Serial No. 09/125,032. Applicants respectfully request that this provisional rejection be held in abeyance until such time that the claims in the present application have been found to be allowable.

The rejection of the specification and Claim 39 under 35 U.S.C. §112, first paragraph is respectfully traversed.

Applicants submit herewith an executed Declaration regarding the deposited microorganisms cited on page 30 of the present application. Applicants further submit that all restrictions upon availability to the public of these deposited microorganisms will be irrevocably removed upon granting of the patent. Thus, withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 25-38 under 35 U.S.C. §112, first paragraph is respectfully traversed.

Claims 25-38 have been canceled. Claims 46-64 recite a synthetic polynucleotide encoding a 19kD C-terminal fragment of MSP1 having a total GC content of 40 to 60% and baculovirus vectors containing the same which are fully enabled by the present specification under the meaning of 35 U.S.C. §112, first paragraph. Thus, withdrawal of this ground of rejection is respectfully requested.

The rejection of Claims 25-39 under 35 U.S.C. §112, second paragraph is respectfully traversed.

Claims 25-39 have been canceled. Claims 46-64 are clear and definite upon the recitation of the synthetic polynucleotide encoding a 19kD C-terminal fragment of MSP1 having a total GC content of 40 to 60% and baculovirus vectors containing the same. Furthermore, the instant claims properly depend from one another. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The objection to the specification is believed to have been overcome by the amendments and substitute Sequence Listing filed herewith.

Applicants further submit that the present application is now in condition for allowance. Early notice of such is earnestly solicited.

Respectfully submitted,

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